



Toy Boat Automata

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TOOLS:

- [Drill \(1\)](#)
- [Sander \(1\)](#)
- [Scroll saw, band saw, or jigsaw \(1\)](#)
- [Table saw or hand saw \(1\)](#)



PARTS:

- [Assorted hardwoods or softwoods \(1\)](#)
whatever you prefer
- [Number 4 washers \(1\)](#)
optional
- [1/8" brass or wood dowel \(1\)](#)
- [Glue \(1\)](#)

SUMMARY

Here's how to make a toy boat automata that is very sweet and interesting. I often have it on the coffee table when I have guests, and it's surprising how often it's picked up and played with by young and old.

Step 1 — Toy Boat Automata



- First, save the layout and print the patterns.
- Next, you can either cut out the patterns and glue them to the wood, or you can trace them onto the wood; whatever floats your boat. I used a 1/4"-thick piece of oak board for the box and waves and a 1/4"-thick piece of mahogany for the boat and crank. The sails are about 1/8" thick, also made of oak.
- You don't have to use hardwood for this project. Whatever you can find will work.

Step 2



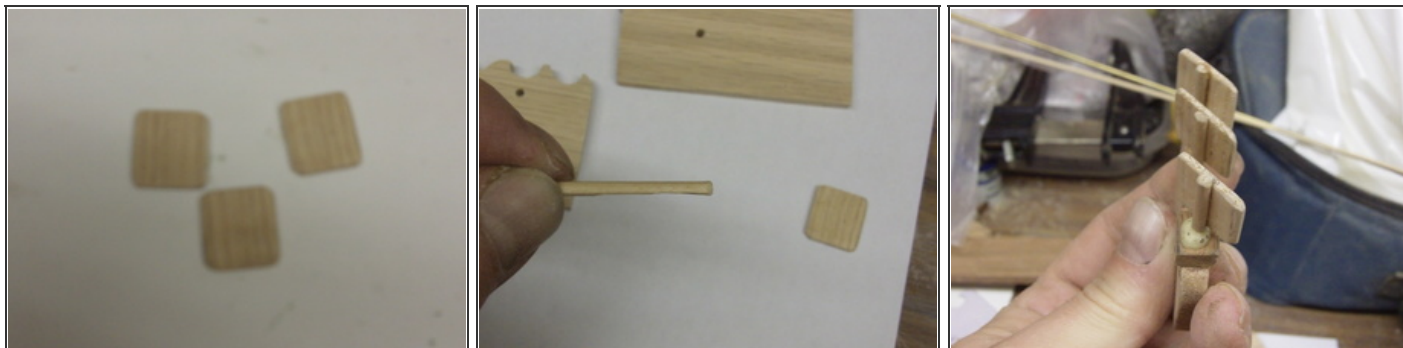
- I used a 1/4-inch piece of mahogany for the boat. I also cut an extra piece for the cabin. This is not necessary; you can just add a cabin onto the pattern. I did it for the 3-D effect.
- Now draw where your masts will go.

Step 3



- When drilling blind holes, a good trick is to put a piece of tape on the drill bit to know how deep to go. I drilled a hole for the masts with a 1/8" drill bit, and for the back pinion pin hole I used a 5/32" drill bit.
- Next, draw out where the cabin/cannon windows will be and use a 1/16" drill bit to slightly etch them into the wood.

Step 4



- Next, cut out your sails. I used 1/8-inch oak. Then I cut my masts, sanded one side for better glue adhesion and used clothes pins to hold them until the glue had hardened.
- After they have dried, glue them to your boat.

Step 5



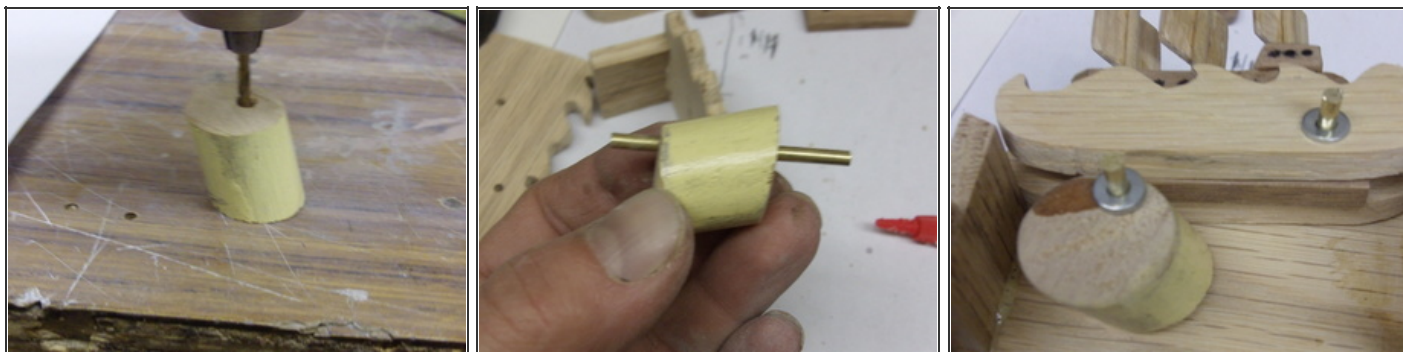
- I used a permanent felt marker to mark the cabin/cannon windows and the flag.
- Next, I used a 1/8 inch drill bit to drill the pinion and crank holes for the outside of the toy.
A good way to do this is to clamp both together and drill them at the same time so that they line up perfectly. I also drilled the inside waves and boat, but I used a 5/32" drill bit so the waves move smoothly.
- Now paint the inside parts of the toy. I used Tung'n Teak Danish oil.

Step 6



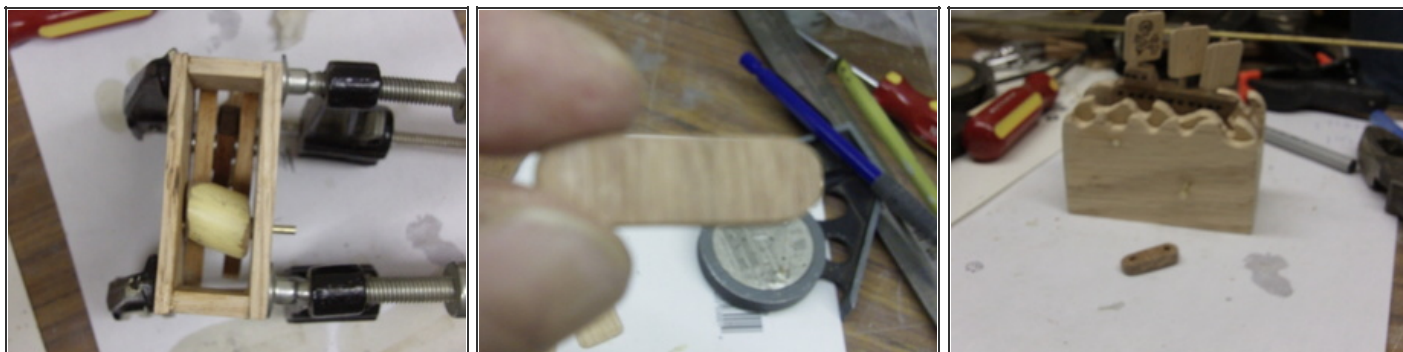
- Start putting your box together. I made the sides of the box 1" X 1 1/4" with a tapered inside slope so it wouldn't interfere with the movement of the waves. I also glued in the fixed pinion rod. I used a piece of 1/8" brass. You can also use 1/8" wood dowel.
- Start putting your project together. I used #4 washers for spacers, but this is not necessary. Your boat and waves should move freely since these holes are drilled with a 5/32" drill bit.
- Next, cut yourself a piece of broom handle that is 1" round with a 20-degree angle on each end.

Step 7



- Put your broomstick flat on the work bench and drill a 1/8" hole straight through it, off to the side.
- I used a 1/8" piece of brass dowel 1 7/8" long for the crank shaft and glued it in.
- Next, put it through the crank hole in the box with washers as shown.

Step 8



- Next, glue the box together and let it dry. Then grind down the pinion dowel flush with the wood and one side of the crank, and sand the box.
- Make your crank handle. I used mahogany for the crank and a piece of brass dowel for the handle.

Step 9



- Glue the handle pin and paint the crank.
- Hope you and yours have hours of enjoyment with this simple and fun toy, suitable for all ages.

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